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BIRD MIGRATION IN ITS INTERNATIONAL BEARING

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OF all natural assets bird-life is least localized. Birds are in large part migratory, and many kinds move over great extents of country according to regular seasonal schedule. They cross boundary lines of all sorts, and traverse territory always in response only to their own critical requirements as regards food supply and climate. Faunal boundaries rarely coincide with political boundaries.

It would seem scarcely necessary here to argue the value to any community of its native bird life. We have come to recognize in wild birds sources of recreation, both physical and mental, of æsthetic appreciation, of practical aid in insect repression, of service in reforestation and spread of useful plants, and of food for ourselves.

The great majority of our waterfowl are migratory; and the pursuit, capture and shipment of these in particular, has meant wage-earning occupation for some thousands of men in the United States, for at least a part of each year. In California alone, according to statistics of the State Fish and Game Commission, wild ducks were sold on the markets in 1912 to the value of \$250,000; about one million ducks in all were shot, presumably all used for food; and over one and one half million dollars were expended in the pursuit of these on the basis of recreation—maintenance of gun clubs, traveling expenses, ammunition, etc.

I have here attempted to convey an idea of one of the values of bird-life in terms of dollars; for dollars seem to constitute the only ready measure of value comprehensible to every one. Some of the values of birds just referred to, it is of course impossible to express in connection with the dollar sign. While the total monetary value of birds is not to be figured in hundreds of millions of dollars, as with certain other natural resources, it may properly be asserted, I think, that total disregard or waste of an entire asset of relatively small quantity is just as poor business as disregard or waste of a small part of any large asset.

I hardly need try to demonstrate here my conviction that it *is possible*, without special care, to levy an annual draft upon those birds for which we may have use dead. I will only refer to the biological principle that rate of reproduction has been established at a point in excess of sufficiency to meet the maximum probabilities of casualty. The persistence of the species has been assured, at least under the natural conditions obtaining immediately heretofore. The interpolation of the human factor would seem to have influenced the natural balance on the whole in favor of increasing bird population, this because of the customary destruction by humans of other animals normally predatory upon bird-life. Of course there *are* cases where cultivation of the land by man, or the removal of forests by him, has affected adversely, and inevitably so, the persistence of particular birds; as, for instance, the mountain plover and the passenger pigeon. But there remain very many valuable species which have not been so adversely affected by man's presence and some which have even benefited; and these are the ones from which we can expect contribution to our needs without attention on our part save for regulation of our own rate of draft upon them.

Let it be accepted, then, that bird-life does comprise a natural asset worth conserving, to the end that it may become a thing producing regular annual income. If many of our important species are migratory, how can proper conservation be secured without cooperation between the several countries through which such birds travel during their annual migration? Here in California, in the early days of bird and game legislation, each county of the state formed its own code of laws irrespective of its neighbor. No thought was taken towards adjustment of regulation with a view to conditions throughout the entire state. In 1861, for example, the shooting season for waterfowl and upland game birds in Los Angeles and San Bernardino counties opened on August 1, whereas in adjoining counties it did not open till September 15. The earlier date cut into the nesting season of the birds to the injury of the breeding stock in all the counties. But adjustments have now been made, by which judicious treatment is accorded to the game birds throughout the state, although this has meant the curtailment of shooting altogether in some districts—this, however, strictly in the interests of the state as a whole.

Can there be any less justification for the cooperative conservation of bird-life as between nations?

One of our wading birds, the golden plover, at one time so plentiful at certain seasons along the Atlantic Coast and in the

Mississippi Valley as to be marketed in New York City by the barrelful, repairs during its short summer breeding season to the Arctic coast of North America from Alaska eastward. There it finds safety for its young, as well as adequate food. In late summer the flocks of golden plover, adults and young, start on their southward migration, going first eastward to the Labrador coast, thence to Nova Scotia and the coast of New England; then they undertake a journey of 2,500 miles southwards across the Atlantic Ocean to Brazil, and thence proceed to the plains of Argentina. In the last named country the birds spend their winter time under summer skies, then start northward in the early spring along a course different from that followed in the fall. Passing through northwestern South America and through Central America they cross the Gulf of Mexico, follow up the Mississippi Valley across the central United States and continue on through central Canada to their breeding grounds, on the Arctic Coast. In this annual circuit of more than 16,000 miles, as worked out by the late W. W. Cooke, of the United States Biological Survey, the golden plover comes under the jurisdiction (where any regulations at all exist) of no less than seven different nations.

This particular game bird does still exist, but probably in not one one-hundredth part of its original numbers—for this reason: It happens that the migrant throngs were intercepted without let or hindrance by market hunters at at least one critical point on their annual circuit, the coast of New England. Whole flocks were annihilated without regard to the principle of maintenance of breeding stock. This could not help but injure the supply of plover at all other points in its range.

Again let it be said that there is no doubt but that native birds of any sort can be so treated that an annual crop can be gathered. This has been done from time immemorial with permanently resident species of game birds in Scotland, Holland, and other European countries.

Happily, the laws of the United States are now closely approaching the ideal in their treatment of birds as a national asset. But no one country alone can handle the problem of the migratory species. Migratory birds constitute a common property among nations, and one which should be administered in common and shared with due regard to all the factors involved. An important step has just been taken in this direction. In 1916 there was formulated as one provision of a treaty to be entered into between the United States and Canada a migratory bird clause, under the provisions of which each of the two countries is to adhere to a program of absolute protection of

migratory insectivorous birds and of maximum limits of open seasons on migratory game species. The final ratification of this "migratory bird treaty" was completed by our Congress, June 6, 1918; the Canadian sanction had already been formally given some months previously. As far as my knowledge goes this is the first really important accomplishment as regards international agreement in the regulation of bird conservation. It is the beginning of a system which should in all reason prevail among countries throughout the world.

In the birds of migratory habit we have a valuable asset which cannot be administered advantageously in any other way than through international cooperation.